

## Trainee Section

# Canadian Women in Cardiovascular Medicine and Science: Moving Toward Parity

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## Defining the Canadian Women's Story: Past, Present, and Future

### Historical data: the Canadian viewpoint

It was not until medicine began credentialing surgeons and doctors in the 19th century that women were prevented from joining medical colleges or professional guilds. Women thus took on secondary roles, eg, as caregivers, apothecaries, midwives, and nurses. Any inroads back into formal medical education, licensure, and practice came with the advent of (1) nursing initiatives by women such as Florence Nightingale (who formalized modern nursing) and Clara Barton (who founded the American Red Cross) and (2) women's training hospitals and specialist clinics by women physicians such as Drs Elizabeth Blackwell and Garrett-Anderson in the United States and England, respectively. In Canada, Dr Emily Stowe was initially denied entrance into Toronto's Medical School in 1865 but, together with Dr Jennie Kidd-Trout, would become the first licensed female practitioners in Ontario by 1880. Her daughter, Dr Augusta Stowe-Gullen, became the first female medical school graduate in Canada in 1883. Dr Irma LeVasseur required the passage of a private member's bill to practice in Quebec in 1903. She later founded the Hôpitaux de L'Enfant-Jésus and Sainte-Justine, pioneering paediatric medicine. Dr Maude Abbott, founder of the Federation of Medical Women of Canada in 1924, also published the *Atlas of Congenital Cardiac Disease* in 1936. Dr Helen Taussig conceptualized the Blalock-Taussig shunt,

and in 1947 published *Congenital Malformations of the Heart*. In research, 16 women worldwide were named Nobel Laureates for key scientific discoveries, Madame Curie being the most famous for her works on radiation.

We have come a long way since the 1900s: Currently, nearly half of our Canadian graduates in medical and graduate schools are women.<sup>1</sup> Unfortunately, gender parity in the early years of medical and graduate training wanes when we examine traditionally male-dominated clinical training programs, postdoctoral fellowships, and academia (eg, as new hires, tenured faculty, or department leads).<sup>1</sup> In Canada, only 1 dean and 2 department chairs of medicine were reportedly women in 2015.<sup>1</sup> When women have played such defining roles in medicine and science, how do we reconcile gender gaps that still persist?

### Women in cardiovascular medicine: real parity or leaky sieve?

Women remain vastly underrepresented in cardiovascular medicine and science in Canada. As of 2017, 9% of established cardiac surgeons and 20% of newly certified cardiac surgery fellows are women. Likewise, 22% of adult cardiologists and 44% of pediatric cardiologists are women, respectively improving to 34% and 64% for newly minted specialists (Royal College of Canada, personal correspondence). Although these trends are a sign of improvement, have we really achieved gender equity with few women practicing invasive cardiology? Women report less satisfaction with their

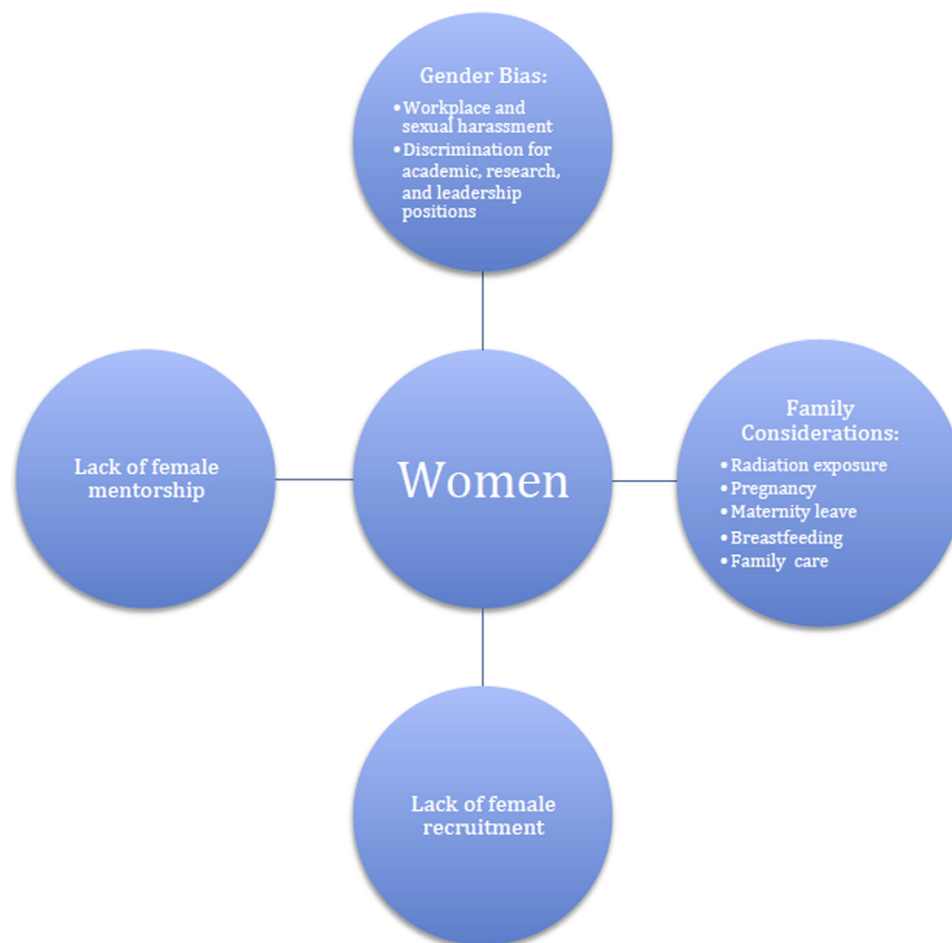
work as cardiologists, compared with the satisfaction reported by men (69% vs 84%), and their ability to achieve professional (88% vs 92%) and financial (65% vs 70%) compensation.<sup>2</sup> This is more marked in academia, in which gender inequities permeate the broader health research landscape. At Canadian universities, male professors outnumber female professors 1.85-fold. However, there are comparable numbers of male and female trainees engaged in health research up until the doctoral stage, after which female trainees drop off the academic ladder.<sup>3</sup> In the past 20 years, women have represented 13% of editors and 28% of reviewers for public health journals overall.<sup>1</sup> By comparison, 12%-14% of general (12 of 104) and trainee (1 of 7) editorial board members and 1 associate editor (of 11) for the Canadian Journal of Cardiology are women.

### Gender biases: where lie the scales of balance?

Gender bias, whether through conscious action or not, is defined as an unfair difference in the treatment of women and men. A survey of American medical school faculty members reported that female staff perceived workplace discrimination 2.5-fold more often, and more than half experienced some form of sexual harassment. Publications, career satisfaction, and professional confidence, interestingly, were not impacted

by this.<sup>4</sup> Yet, women earn less for equal work, are promoted more slowly, and fare worse in academia's peer review process, with less research funding.<sup>1,5</sup>

To level the gender-disparate playing field, it may be prudent to appreciate why differences may exist (see Fig. 1). Do women carry a different burden of family planning and childrearing? Do women have different concerns regarding radiation exposure during their childbearing years? Do female trainees benefit from women mentors who have dealt with similar challenges of gender disparity in their era? The answer, resoundingly, is yes. These issues are also perceived to interfere with career and fellowship options. And, while 76% of women reported becoming pregnant during their fellowship or early career, many female cardiologists surveyed felt pressured to take shorter maternity leaves.<sup>2</sup> The culture of paternity leave is still almost unheard of in cardiovascular medicine. The European Association of Percutaneous Cardiovascular Interventions (EAPCI) Women's Committee and the Women in Innovations—The Society for Cardiovascular Angiography and Interventions (WIN-SCAI) program have further highlighted a lack of opportunity and male prejudices, rather than demanding work hours alone, as the most prevalent reasons for not choosing fields such as interventional cardiology.<sup>5</sup> There remain other issues requiring attention: entry-level



**Figure 1.** Issues impacting women in cardiovascular medicine and science. A woman's career trajectory (hub) is impacted by multiple gender-specific issues (spokes).

competition, prohibitive financial burdens, fewer female role-models, and ethnicity.

### **Defining the Battleground for Women's Initiatives: Future Goals**

To recruit and retain women in cardiovascular medicine and research, a number of key measures need to be considered, including flexible working conditions, retraining options after maternity leave, and targeted work and research prospects. For instance, with the recent provision of networking, mentorship, and career development opportunities, the University of California Davis School of Medicine observed a significant increase in the percentage of female faculty and senior leadership.<sup>6</sup> Such universal efforts can better help achieve gender parity, aide with gender-specific challenges, and perhaps even advance the academic careers of women into executive leadership positions.

The Canadian Institutes of Health Research (CIHR) recently announced prioritizing gender equity across its tri-agency programs. They acknowledged that although women and men experience comparable success rates in CIHR competitions, gender inequities do exist.<sup>3</sup> The 2010-2015 competitions showed that although men and women have fairly similar success rates in mainstream doctoral (13.4% vs 11.9%, respectively) and fellowship (17.2% vs 17.0%, respectively) award competitions, men have historically been more successful in obtaining the more prestigious Vanier (35.6% vs 27.4%, respectively) and Banting (12.6% vs 9.1%, respectively) awards. Although it is still too early to know whether this gender equity framework by CIHR will be successful in improving the health research funding allocation for women, recognition to rectify these inequities at the female trainee level is a first step.

### **Leadership and mentorship: translating recruitment into executive class roles**

There are growing examples of Canadian women who have “broken the glass ceiling” as successful leaders in cardiovascular medicine and research. How can we now build on this momentum to open more doors for women and eliminate any persisting gender gaps? Should we not aim for more than the 1 token woman on candidate short lists for these types of opportunities? Are we overlooking women who are less bold and quietly sociable for their boardroom potential as effective negotiators, leaders, and innovators? Sometimes toeing the office party line or being a drinking buddy can actually close off any upward progress for female executive class leadership.

“Leaning in,” however, requires active mentorship to get the conversation started and to keep its forward momentum. Within the cardiovascular community, we aim to collaboratively provide this connectedness through women trainees’

networking events and the #LookLikeA...campaign, spearheaded to highlight women with engaging careers in invasive cardiology, critical care, cardiac surgery, and cardiovascular research. Sponsorship can help trainees build unique clinical or research niches. We hope that it can also accelerate the potential for women to rise through the academic ranks by helping to restructure that climb. Perhaps following the metrics of women entering training programs, the workforce, and senior leadership positions may help identify where and why things break down. We can also clarify whether we have enough mentors to guide these women. We are grateful for the narratives of the Canadian women physicians, surgeons, and researchers who preceded us; it was their resolve in overcoming the more discernable obstacles that now allows us to define the present conversations in moving toward parity. Hopefully, with these types of initiatives and by learning from past narratives, we will have sown the seeds from which will eventually blossom gender equity. Time will tell.

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